



# FUSES

## BUYING GUIDE



### WHAT DO THEY DO?

An electrical fuse is a non-reusable, sacrificial safety device designed to protect an electrical circuit from excessive current. All fuses operate on the heating effect of electric current (Joule's Law):

- **Principle:** A calibrated metal element inside the fuse is placed in series with the circuit.
- **Fault:** When current exceeds the fuse's rating (due to an overload or short circuit), the excess current causes the element to rapidly heat up.
- **Action:** The element melts, creating an open circuit that instantly stops the flow of electricity, thus preventing damage to downstream equipment, components, and wiring.

### Overcurrent Fault Types

Fuses protect against several types of overcurrent events:

- **Short Circuit:** A sudden, high-magnitude current caused by a low-impedance path, such as a line-to-line or line-to-ground fault. Fuses respond almost instantly to interrupt these dangerous currents and minimize damage.

### Topics

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- **Overload:** A sustained current above the normal operating level, often caused by too many devices or excessive load on a circuit. While lower in magnitude than short-circuit faults, prolonged overloads can cause insulation damage and overheating. The time-delay element will open over a much longer time based on the overload level and the specific fuse trip curve.
- **Ground Fault:** An unintended current path to ground, which may vary in magnitude. Fuses will interrupt ground faults if the fault current is high enough to exceed the fuse rating; for low-level ground faults, additional protection like ground-fault relays or GFCIs is required.

Select the class that matches interrupting rating, coordination needs, and equipment sensitivity. Proper fuse selection reduces downtime and prevents collateral damage in automated systems.

# APPLICATIONS

Fuses protect circuits from overloads and short circuits across industrial systems, from control panels to motor drives. Select fuse classes and holders that match interrupting ratings, system voltage, and space constraints for reliable protection.



**General Control Panels:** Class CC fuses provide protection for solenoids, relays, transformers, power supply inputs, and small motor circuits in industrial control panels.



**Drive and Inverter Protection:** Use Class J high-speed and Class T extremely fast-acting fuses to protect variable-frequency drives, rectifiers, and semiconductors from high fault currents and fast transients.



**Motor and Distribution Circuits:** Use Class CC, J, and RK1 / RK5 current-limiting fuses for motor feeders and distribution mains where motor starting and selective clearing are required to reduce upstream fault stress.



**High-Amp Protection:** Use Class J and L fuses for high-current feeders, providing fast-acting, current-limiting protection and high interrupting ratings for large loads.

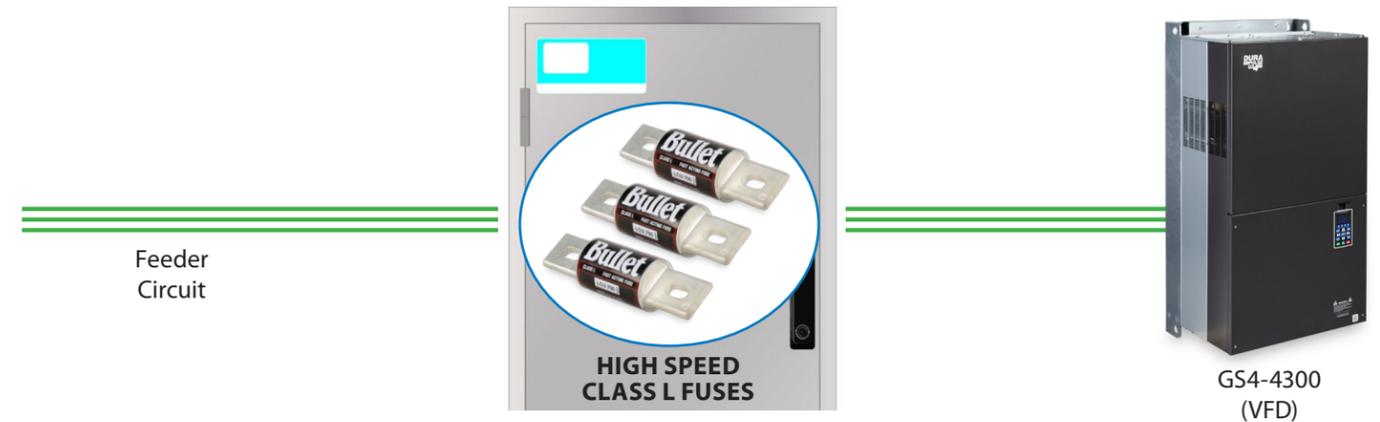


**Electronic Circuit Protection:** Use small-dimension glass and ceramic supplemental fuses for PCB-level protection, control electronics, and sensor circuits where space and low interrupting energy are essential.

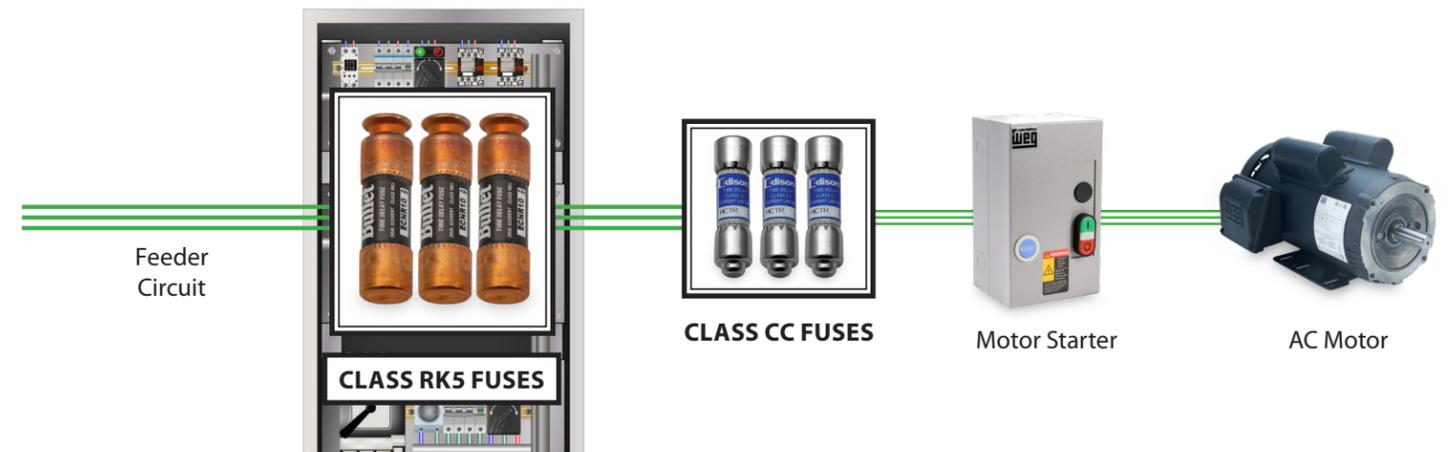
Match fuse class and speed to the equipment and fault characteristics, and combine with proper holders and fuse-blocks for safe, code-compliant installations. Consult system coordination curves when finalizing selections.

# APPLICATIONS: EXAMPLES

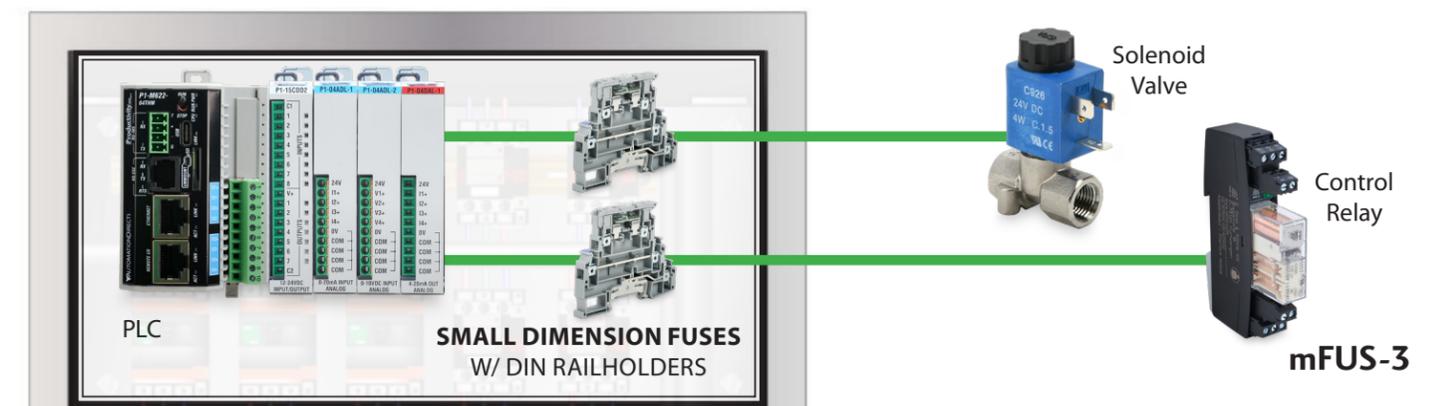
- **Large Variable Frequency Drives:** High-speed Class L fuses provide short-circuit protection for large VFDs and non-inductive loads.



- **Motor Overcurrent Protection:** Class CC, J, and RK1 / RK5 fuses protect motor feeders from short circuits and overloads, reducing conductor and starter damage and speeding recovery.



- **Low-Voltage Equipment Protection:** General purpose supplemental fuses are often used inside appliances, power supplies, or specialized control equipment. They are also used inline with PLC inputs and outputs to protect the controller from short circuits in the field device.



## HOW TO CHOOSE

Select fuses by matching protection needs to system characteristics, device sensitivity, and fault current potential. Focus on interrupt rating, time-current behavior, protection type (branch-circuit or supplemental), and physical dimensions.

### Fuse Types:

1. Class CC: Choose for branch-circuit overcurrent protection where compact size and high interrupting capacity are required (limited to 30A).
2. Class J: Select for industrial control and motor circuits requiring higher amp ratings, robust fault clearing, and a small footprint.
3. Class J high-speed drive: Use when protecting VFDs and semiconductor devices from fast, high-energy faults to prevent semi-conductor damage.
4. RK5: Opt for these in industrial panels needing time-delay characteristics and high interrupting ratings for motors.
5. RK1: Choose when higher ampacity and slower clearing time suit larger motor circuits and heavy loads.
6. Class L fast-acting: Select to protect variable speed drives (VFDs) and other power electronics that require high-speed fault interruption to prevent catastrophic component failure.
7. Class T extremely fast: Use for protecting sensitive electronics and semiconductor devices that require minimal let-through energy.
8. Supplemental (Midget): Pick these for compact control panels and small power supplies where space and basic protection matter.
9. Small glass fuses: Select for low-voltage electronic circuits and consumer-grade modules that need economical, fast supplemental protection.
10. Small ceramic fuses: Choose when higher interrupting rating and thermal stability are required for supplemental protection of compact electronic assemblies.

### Selection Steps:

1. Determine circuit and load requirements.
  - **Operating Voltage (V):** Find the maximum voltage of the circuit (AC or DC). The fuse's voltage rating must be equal to or greater than the circuit voltage. Never use a fuse with a lower voltage rating.
  - **Continuous Current (I):** Determine the maximum normal, steady-state current draw of the load (in Amps). Select a fuse rated in accordance with the applicable electrical codes, such as NEC, CEC, or local requirements.
  - **Maximum Fault Current (Short-Circuit):** Determine the maximum short-circuit current that could be available at the point of the fuse installation (this often requires a system study). The fuse's Interrupting Rating (IR) must be equal to or greater than the maximum available fault current to safely interrupt the fault without rupturing.
2. Select the correct operating characteristics.
  - **Time-Delay (Slow-Blow):** Required for circuits with high, momentary inrush currents that last for a few cycles, such as motors, transformers, or power supplies with large input capacitors.
  - **Fast-Acting:** Required for circuits with no significant inrush current or for protecting sensitive components (like semiconductors or electronic circuits).
  - **Current Limitation:** For protection of components with a low Short-Circuit Current Rating (SCCR) (like modern IEC-style motor starters or small VFDs).
3. Check physical & environmental fit.
  - **Fuse Class Selection:** Choose the appropriate UL Fuse Class based on the required ampere rating and current limitation.
  - **Verify Physical Size:** Ensure the fuse dimensions (length and diameter/blade) fit the existing fuse holder or block.
  - **Account for Heat:** If the environment is very hot, you must thermally derate the fuse (select a higher amp rating) to prevent nuisance tripping.

## SELECTION GUIDE

Fuse Class	Series	Amperage Range	Characteristics	Typical Applications	Starting Price
Class J	JDL	1 to 600A	Time-delay, current-limiting, dual element, compact design. Recommended for Type 2 (no damage) protection for NEMA and IEC motors/starters.	General purpose circuits with high inrush inductive loads (motors, transformers), and lighting loads.	\$199.00
Class J	JHL	1 to 600A	High-speed performance in a Class J package. Best for protecting sensitive, high-value electronic components.	AC and DC drives, electronic motor controllers, and power semiconductor devices (diodes, SCRs, or SSRs).	\$35.50
Class RK5	ECNR/ECSR	1 to 600A (ECNR) and 3 to 600A (ECSR)	Time-delay, dual element. Allows sizing closer to running loads to reduce cost.	Mains, feeders, and branch circuits in AC power distribution systems, including high inrush inductive and non-inductive loads.	\$97.00
Class RK1	LENRK/LESRK	10 to 600A (LENRK) and 5 to 600A (LESRK)	High level of fault protection. Offers up to 40% more current limitation and 350% more I <sup>2</sup> t limitation than RK5 fuses.	Critical AC power distribution system mains, feeders, and branch circuits.	\$129.00
Class T	TJN/TJS	1 to 600A (TJN) and 0.5 to 30A (TJS)	Extremely fast-acting, current-limiting, compact, space-saving size. Best for main protection where panel space is at a premium.	Main fuse protection for panel boards, load centers, meter stacks, and AC drives.	\$23.50
Class CC	HCLR/HCTR	0.5 to 30A (HCLR) and 0.25 to 30A (HCTR)	Compact design with a formidable 200kA interrupting rating. HCLR is fast acting (for resistive loads). HCTR is time delay (for inductive loads, meets UL508 and NEC 430.72).	Standard branch circuit and control transformer primary protection. HCTR for motor branch protection.	\$158.00
Class CC	EDCC	0.5 to 30A	Time-delay, low peak design specifically engineered for motor protection. Provides Type 2 coordinated protection.	Small horsepower motor circuits.	\$171.00
Class L	LCU (Fast-Acting)	601 to 1200A	High-amperage, fast-acting, and current-limiting. For applications that do not have high inductive loads.	Protection in large industrial power circuits. Ideal for protecting low interrupting circuit breakers and non-inductive loads.	\$807.00
Supplemental (Midget)	MCL/MOL/MEQ/MEN	0.25A (MEQ) to 50A (MCL)	Provides crucial supplemental protection. MCL is fast-acting; MOL is economical; MEQ/MEN are for high inrush inductive loads (MEN is dual element).	End-use equipment and control circuits.	\$32.00
Small Dimension Electronic	ABC/AGC/GMA/GMC/MDA/MDL/S500/S506	0.032A (S500) up to 30A (ABC, AGC)	Small, precise protection. Available in glass and ceramic tubes with fast acting (ABC, AGC, GMA, S500) and time delay (GMC, MDA, MDL, S506) options.	Supplemental protection for delicate components in electronic equipment and low-voltage, low-current applications.	\$3.75/5pk.



## FUSES



### EDISON JDL SERIES CLASS J FUSES

**STARTING AT \$181.00**

The JDL is the most popular current-limiting, dual-element, time-delay fuse available. Its compact design and superior performance make it the ideal choice when panel space is at a premium.

- 1 to 600A amperage range for application in most general purpose circuits
- 200kA interrupting rating at 600 VAC
- Small physical size and high performance for space-limited applications
- Recommended for achieving Type 2 (no damage) protection for NEMA and IEC style motors, starters, and contactors
- Typical applications include general purpose circuits with high inrush inductive loads (motors, transformers), and lighting loads

CLASS  
J

### EDISON JHL SERIES CLASS J FUSES

**STARTING AT \$32.50**

The JHL Class J fuse series offers the best of both worlds, combining the high-speed performance typically found in semiconductor fuses with the convenience and form factor of a standard Class J branch-circuit fuse.

- 1 to 600A amperage range, ideal for protecting high-current AC and DC drive systems
- 200kA interrupting rating at 600 VAC, 100 kA at 450 VDC
- High-speed protection in a convenient Class J package
- Best for protecting sensitive, high-value electronic components and control systems
- Typical applications include AC and DC drives, electronic motor controllers, and power semiconductor devices (diodes, GTOs, SCRs, or SSRs)



CLASS  
J

### EDISON ECNR AND ECSR SERIES CLASS RK5 FUSES

**STARTING AT \$88.00**

These Class RK5 dual-element, time-delay fuses are designed to save you money without sacrificing protection. Their time delay characteristics allow for sizing closer to the running ampacity of inductive loads.

- 1 to 600A (ECNR) and 3 to 600A (ECSR) amperage ranges suit most mains, feeders, and branch circuits
- 200kA interrupting rating at 250 VAC / 600 VAC (depending on model)
- Helps reduce cost and improves overcurrent protection by allowing closer sizing to running loads
- Ideal for mains, feeders, and branch circuits in AC power distribution systems
- Typical applications include high-inrush inductive loads (motors, transformers) and non-inductive loads (lighting, heating)



CLASS  
RK5



CLASS  
RK1

### EDISON LENRK AND LESRK SERIES CLASS RK1 FUSES

**PRICED AT \$118.00**

For critical applications requiring the highest level of fault protection, choose Class RK1 dual-element, time-delay fuses. These fuses deliver enhanced performance, dramatically reducing potential damage during a fault event.

- 10 to 600A (LENRK) and 5 to 600A (LESRK) amperage range for superior current limitation in demanding industrial distribution systems
- 200kA interrupting rating at 250 VAC / 600 VAC (depending on model)
- Enhanced protection with up to 40% more current limitation and 350% more I<sup>2</sup>t limitation than RK5 fuses
- Recommended for AC power distribution system mains, feeders, and branch circuits
- Typical applications include high inrush inductive loads (motors, transformers) and non-inductive loads (lighting, heating)

### EDISON TJN AND TJS SERIES CLASS T FUSES

**STARTING AT \$21.50**

When space is tight and reaction speed is critical, the TJN and TJS Class T fuses are the solution. These are extremely fast-acting fuses packed into a compact, space-saving size.

- 1 to 600A (TJN) and 0.5 to 30A (TJS) amperage ranges support both high-amperage mains and lower-amperage branch circuits
- Best for main protection where panel space is at a premium
- Typical applications include main fuse protection for panel boards, load centers, meter stacks, and AC drives



CLASS  
T



### EDISON HCLR AND HCTR SERIES CLASS CC FUSES STARTING AT \$144.00/10pk.

Class CC fuses offer a compact design with a formidable 200kA interrupting rating.

- 0.5 to 30A (HCLR) and 0.25 to 30A (HCTR), ideal for standard branch circuit and control transformer primary protection
- 200kA interrupting rating at 600 VAC
- HCLR (Fast-Acting): Excellent choice for resistive loads, recommended for branch circuit protection, resistive heating, and lighting loads
- HCTR (Time-Delay): Tailored for demanding high-inductive loads and meets UL508 and NEC 430.72 requirements, recommended for motor branch protection and primary protection for control transformer loads

### EDISON EDCC SERIES CLASS CC FUSES STARTING AT \$156.00

The EDCC fuse features a low-peak design specifically engineered for motor protection. It delivers excellent current-limiting capabilities (up to 200kA 600 VAC), providing coordinated protection for small horsepower motor circuits.

- 0.5 to 30A, perfect for small horsepower motor circuits
- 200kA interrupting rating at 600 VAC, 20 kA at 300 VDC
- Low-peak design ensures excellent current limiting
- Best for providing Type 2-coordinated protection for NEMA and IEC starters/contactors



### EDISON MCL / MOL / MEQ / MEN SERIES MIDGET FUSES STARTING AT \$29.00

These midget fuses provide crucial supplemental protection for end-use equipment and control circuits. They are available in a variety of trip curves and constructions to suit a wide range of application requirements.

- Spans from 0.25A (MEQ) to 50A (MCL), protecting various control and supplemental circuits
- Interrupting ratings up to 100kA at 600 VAC)
- MCL (0.5 to 50A): Fast-acting, high protection (100kA IR) for control circuits and electronic equipment
- MOL (0.5 to 30A): Economical, best for non-inductive control loads and lighting circuits
- MEQ / MEN (0.25 to 30A): Specifically for high-inrush inductive loads (transformers, solenoids); MEN series features a dual element design to safely pass harmless inductive surges

### EDISON ABC / AGC / GMA / GMC / MDA / MDL / S500 / S506 SMALL DIMENSION FUSES STARTING AT \$3.50/5pk.

Small dimension electronic fuses provide critical supplemental protection for sensitive components in electronic equipment. They are available in various sizes and materials, including glass and ceramic tubes, with fast-acting or time-delay options.

- Amperage ranges from 0.032A (S500) up to 30A (ABC, AGC), providing granular current protection for sensitive components
- Interrupting ratings up to 10kA at 125 VAC
- Small, precise protection for low-voltage, low-current applications
- Fast-acting (ABC, AGC, GMA, S500) and time-delay (GMC, MDA, MDL, S506) models



### EDISON LCU SERIES CLASS L FUSES STARTING AT \$738.00

The LCU is a high-amperage, fast-acting, and current-limiting Class L fuse solution for applications that do not have high-inductive loads.

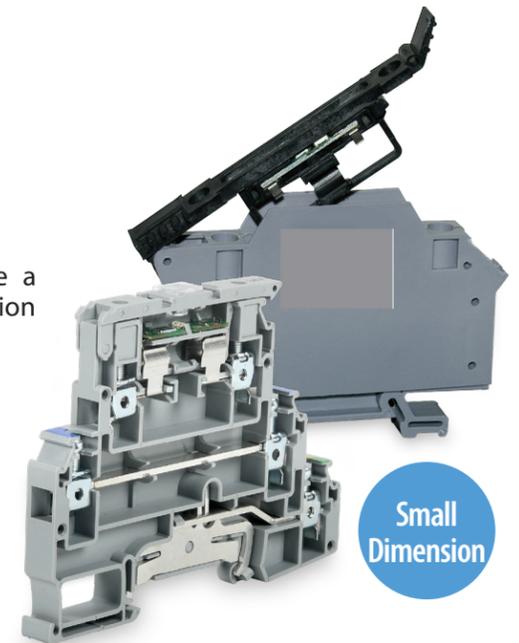
- 601 to 1200A, engineered for protection in large industrial power circuits
- 200kA interrupting rating at 600 VAC
- High-amperage protection with fast-acting current limitation
- Ideal for protecting low-interrupting circuit breakers and non-inductive loads

## FUSE HOLDERS AND FUSE BLOCKS

### TERMINAL BLOCK FUSE HOLDERS STARTING AT \$35.00/10pk.

DINnector and Konnect-It brand terminal block fuse holders provide a convenient way of installing and removing fuses, and are an ideal solution when there is a need to easily change fuses while the system is powered.

- DIN-rail mount, terminal-block-style fuse holders with pivoting fuse lever
- Available for 1/4" x 1-1/4" and 5mm x 20mm size general purpose fuses
- Rated at up to 600V, up to 30A, and can accommodate wires up to 6 AWG
- Blown fuse indicator on select models for added convenience
- Up to a 10kA short-circuit current rating (SCCR)





CLASS  
CC

CLASS  
M

CLASS  
J

## MODULAR FUSE HOLDERS

**STARTING AT \$5.75**

Edison and Soctomec brand modular fuse holders provide a convenient, cost-effective solution for fused connections in power or control circuits, electronic equipment, lighting applications, etc.

- Finger-safe modular fuse holders for Class CC, M (Midget), and J fuses available in 1-, 2-, and 3-pole form factors
- Accommodates large wire sizes up to 1AWG
- Quick and easy fuse install/removal - no tools required
- Models with blown fuse indicators allow operators to quickly identify fuses that need to be replaced

## COMBINATION FUSE / POWER DISTRIBUTION BLOCKS

**STARTING AT \$69.00**

Edison combination power distribution/fuse blocks for Class J fuses eliminate the need for a separate power distribution block, using less panel space and reducing installation time and labor.

- Combinations of up to two line terminations and up to six load terminations are available
- 1-, 2, and 3-pole models offer up to 400A capacities
- Integral design achieves 200kA SCCR for both
- Finger-safe covers (purchase separately) with and without blown fuse indication



CLASS  
J



CLASS  
CC

CLASS  
M

CLASS  
J

CLASS  
RK5

CLASS  
RK1

CLASS  
T

## MODULAR FUSE BLOCKS

**STARTING AT \$11.00**

Edison modular fuse blocks for Class CC, M (Midget), T, J, and R fuses provide a centralized, organized, and space-saving location for housing and protecting multiple electrical circuits with individual fuses. Blocks can be expanded or reconfigured as electrical needs change without having to overhaul the entire setup.

- Available in 1-, 2- and 3-pole models
- Up to 60A (ferrule style/push-in); 60-600A (box-lug style/knife-blade) capacities
- Can be DIN-rail or panel mounted (depending on model)
- Finger-safe covers (purchase separately) with and without blown fuse indication

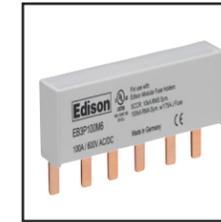
## FUSE HOLDER AND FUSE BLOCK ACCESSORIES

### SPARE PARTS & ACCESSORIES

A variety of accessories for fuse holders and fuse blocks are available to help with installation and fuse removal, including busbars, wiring lugs, finger-safe covers, a fuse puller, and more.



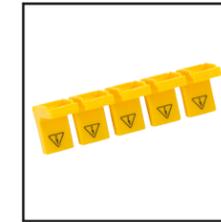
Wiring Lugs



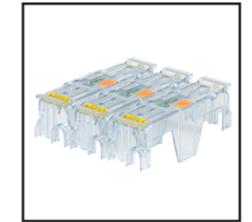
Busbars and  
End Caps



Fuse Puller



Safety Covers



Fuse Block Cover

